

A Part of Your Success



# Your success is our number one target

Hardox® wear plate has been positively proven, again and again, in every climate, terrain and environment. Users all over the world put their trust in Hardox when fighting wear.

Hardox boosts performance and maximises the uptime of applications like excavators, front wheel loaders, tipper bodies, mining trucks, conveyors, chutes, containers, crushers, fragmentisers, mixers, sieves, demolition tools, and barges. For workshops, it shortens lead times and cuts production costs.

Whether you work in design, purchasing, production or sales & marketing, you will benefit from Hardox. It comes as a complete package including plate, people, knowledge and much more.

Note that Hardox is produced only by SSAB. Like no other company, we focus exclusively on quenched and tempered steels. We continuously improve our world leading brands: Hardox® wear plate, Weldox® high strength steel, ArmoX® protection plate and Toolox® prehardened tool steel.









# You know what you get You get what you want

Your choice of wear plate has consequences for your business. With the right wear plate you can improve the performance of your product, cut the lead times in your workshop and increase the productivity of your operations.

Hardox is your ticket to outstanding wear performance.

You are welcome to share SSAB's experience from industries like mining, recycling, transportation, quarrying, concrete and cement. Give us a call and tell us about your specific wear challenge.

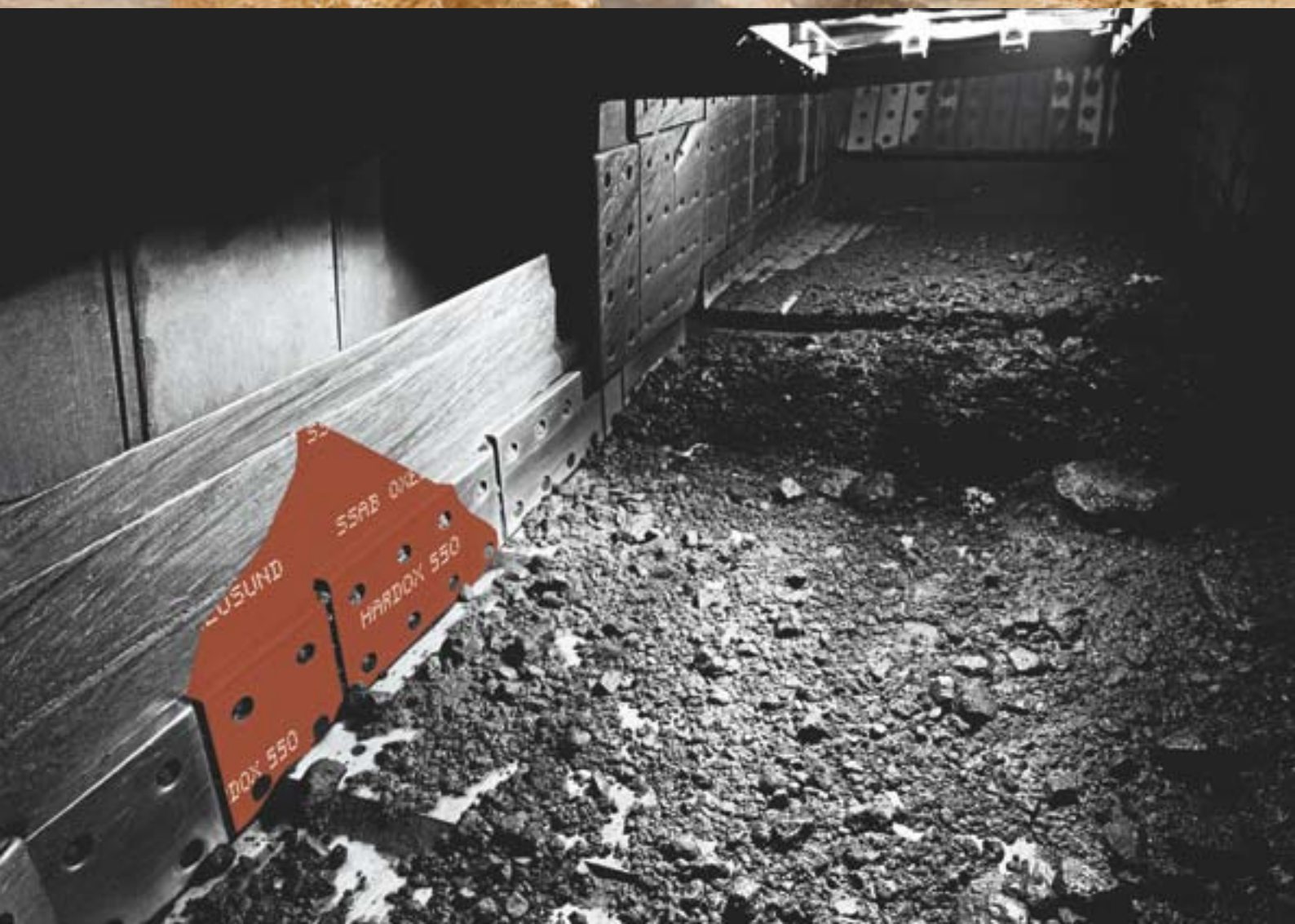


## THE NO.1 WEAR PLATE

Hardox was the world's first modern wear plate when launched in 1974. It was an immediate success and ever since, Hardox has been recognised as the leading wear plate. SSAB constantly develops the products, services and added value that give Hardox its edge.

## ONLY BY SSAB

Only Hardox wear plate provides you with the value that you are entitled to. Make sure that you get the real thing. We keep track of every single plate we produce so if you are uncertain of the authenticity of a steel plate we will gladly assist you.



# Plate you'll wear for a long time

Your equipment is constantly under attack. Hardox combats costly enemies such as cracks, dents and especially wear.

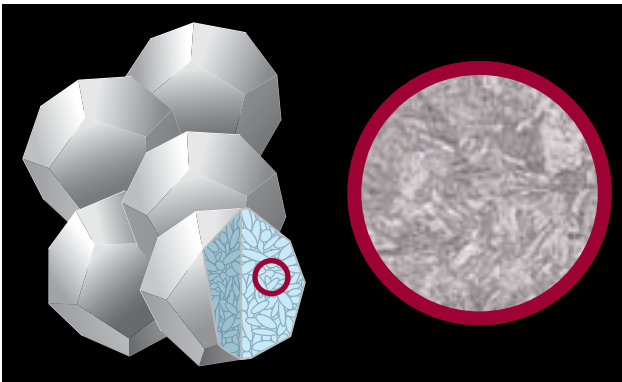
Hardox maximises the wear performance of your products and machines. Depending on the situation, the service life is doubled, tripled or even multiplied by ten. Hardox enables your applications to withstand the worst possible damage and abuse from rocks, sand, scraps, minerals, waste and other hostile materials.

The service life of Hardox is also very predictable. Due to the consistent properties, it performs the same every time. So you can easily forecast its wear life and plan your operations accordingly.

SSAB has in-depth experience in a full range of Hardox application domains. Ask us about the area you are interested in.

## PREMIUM STEEL QUALITY

Pure raw materials, the unique quenching process and a well-balanced alloy chemistry contributes to the premium fine grain steel quality of Hardox. The combination of wear performance, crack safety and deformation resistance provides your applications with a three-way defence against wear, dents and cracks. It also facilitates high quality welding, cutting and bending.



## WEARCALC™

WearCalc is a computer program developed by leading wear experts. It analyses and predicts the relative wear life for your specific application. You can evaluate all relevant steel grades and hundreds of abrasive materials. All results are presented in distinct diagrams.

# HARDOX®

WEAR PLATE

## COMPLETE PRODUCT PROGRAM

No matter what your wear challenge is, you will find a Hardox plate that is up to it. The wide range of hardness grades, thicknesses and widths enables you to always maximise the performance of your application.

Hardox 400 and Hardox 450 are versatile wear plates with high toughness, good bendability and excellent weldability.

Hardox 500 is a tough, bendable and weldable abrasion resistant plate used in applications that require high wear resistance.

Hardox 550, with a hardness of 550 Brinell and a toughness equal to Hardox 500, is designed to increase wear life, but not at the expense of crack integrity.

Hardox 600 is the world's hardest wear plate for extreme conditions. It competes with materials like high chromium white alloy castings, Ni-hards and hardfacing.

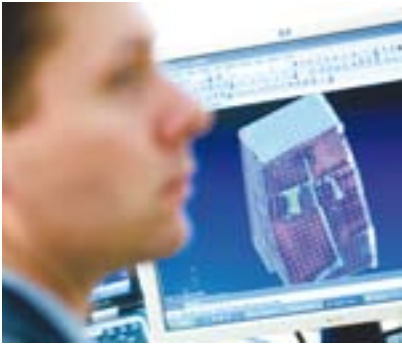
Hardox HiTuf is a wear resistant plate with extra high toughness intended for heavy section wear parts where there are extra high demands on the combination of wear and crack resistance.

Hardox Extreme is intended for applications requiring extremely high abrasion resistance. It can replace costly wear products like hard-faced overlay plates and high chrome white iron. Despite its hardness, it can be welded, cut, milled and drilled using standard workshop practices.



### THIN PLATES

Hardox 450 comes in thicknesses down to 3.2mm and in widths up to 3300mm. These plates demonstrate extraordinary characteristics when it comes to formability, impact resistance and surface finish. Tipper bodies, containers, refuse and concrete trucks are typical applications.



### DESIGN PROJECTS

We continuously run design projects with customers in order to find new designs that boost productivity and attract more attention from end-users. Projects normally run from brainstorming to prototype.

## Lose weight, gain money

For many applications – such as trucks, buckets and containers – extra weight is bad for business. It means lower payload and higher expenses for fuel, tyres, tariffs, and taxes. Often there are also weight regulations to consider.

Hardox reduces the weight of your application. The unique combination of hardness, toughness and structural strength makes it possible to use thinner

plates and achieve the same durability. Using thinner plates can also enable you to build bigger carrying devices that take larger loads.

A lighter application can carry heavier loads and decrease your cost per tonne. Ask us how to increase the payload of your application. In addition to the plate, SSAB will provide you with the expertise.

### END-USERS GUIDE OUR DEVELOPMENT

We maintain close relations not only with our customers, but also with the end-users, e.g. truck drivers, quarry workers and people in construction. Their opinions influence our operations vastly. They guide our product development and of course we appreciate the fact that they often ask manufacturers to use Hardox in their products.







# Einstein came up with $E=mc^2$ SSAB came up with Hardox

Do you know exactly how to maximise the service life and payload of your applications? Are your lead times as short as they possibly can be? Could you reduce downtime even more?

We invite you to access the SSAB knowledge bank. It has been built upon extensive theoretical research, customer cases in more than 125 countries, decades of leadership in the wear plate industry, and several hundred years of Swedish steel tradition.

Fast and easy access is the guiding principle for our support. You have many channels that lead to the same source of knowledge; your local sales contact, our technical managers, TechSupport Online, the Wear Technology Group, the Conceptual Design Group, brochures, websites and the Plate Magazine.

We focus on continuous development of both new and existing products. Take for example Hardox 400. We have dramatically improved its toughness, bendability and surface finish over the years.



## WEAR TECHNOLOGY GROUP™

The Wear Technology Group is committed to developing the technical knowledge of wear. We offer you access to both Ph.D's with leading expertise, and to people with decades of experience from solving wear challenges. You get applied support and information on wear-critical components. Contact us for cost/performance analyses, material selection, prediction of wear and service life, WearCalc software analysis, and other wear matters.



## TECHNICAL MANAGERS

We assign a Technical Manager to every customer. He or she is your primary contact for technical matters. You get assistance with design solutions, optimised production processes, profitability analysis and selection of materials. No matter where you are, you will have quick and easy access to your Technical Manager.



## CONCEPTUAL DESIGN GROUP™

The Conceptual Design Group consists of experts that can help optimise your product from a design perspective. We help you design lighter structures, increase the lifespan and strength of your products, as well as fight fatigue, buckling and deflection. The Conceptual Design Group can also serve as a sounding board in areas like FEM-analysis and Damage Tolerant Design.





# Working at the speed of bright

Hardox has a lot of smart ways to increase the productivity of any workshop, OEM or sub-contractor. It shortens lead times and cuts production costs because of: plate quality, technical support and logistical efficiency.

Hardox features high and consistent quality, within and between plates. So you can run it without frequently changing the settings of your machines.

Our technical experts can assist you in optimising your production processes. We can help you develop your welding

sequences, find the right tools, and provide you with processing data. You can also find useful information in our printed workshop recommendations, which are also available on [www.ssab.com](http://www.ssab.com)

Our worldwide network of stocks ensures fast delivery wherever you are. When ordering from Oxelösund, you can get the plate by boat, truck or train. We also keep you fully updated on supply levels and delivery status.



## WELDING

Hardox requires low preheating thanks to the low carbon equivalent. The plate flatness and narrow tolerances facilitates automatic welding, and shortens preparation time for fit up and tacking. You also get very good HAZ properties due to the high toughness and low levels of steel impurities.



## BENDING

The steel quality and surface finish make a tight bending radius possible, especially when bending thinner plates. The consistent properties and the close thickness tolerances ensure very high precision bending results.



## CUTTING

The extraordinary cutting characteristics derive from the narrow tolerances, the low levels of steel impurities and the well-balanced chemical composition.



## MACHINING

Hardox wear plates are easy to machine. The uniform properties and the consistency between plates give predictable results for machining operations.

# Time is up for downtime

Hardox wear plate lets your products and machines stand up to the toughest treatment, day after day, under the harshest conditions. It maximises service life, minimises the risk of break-down, and makes it possible to schedule maintenance with great precision. In short, you will have fewer stops when using Hardox.

Still, maintenance and repairs are needed once in a while. The workshop friendliness of Hardox helps you to keep maintenance stops as short as possible.

If you ever face an unexpected breakdown, SSAB has a worldwide network of stocks and can easily supply you with the stock plate that meets your requirements. You can also activate our technical support at short notice.



## PLATE QUALITY INSPECTION

Our entire production system from iron ore to finished plate is run with unique precision. We conduct a series of tests for continuous quality assurance and every plate is thoroughly inspected. When you buy Hardox, you can rest assured that it meets the highest standards.



## TECHSUPPORT ONLINE

TechSupport Online provides you with technical support over the phone and through e-mail. You will receive an answer straight away or at the latest within 24 hours. We welcome questions in any language and invite you to work closely with our Technical Managers and expert groups. Our aim is to simplify your work in design, materials selection, fatigue, deflection, bending, drilling, machining and welding.



## STOCK NETWORK AND DIRECT DELIVERY

You can get Hardox from our worldwide stock network, or straight from the mill. SSAB works hard to keep delivery times short and predictable. 70 warehouses, located on all continents, help us deliver stock plates to you, wherever you are. You can also get assistance from your personal customer service contact and the Order Tracking System – OTS – continuously updating you on the status of your shipment.









#### **HARDOX IN MY BODY™**

Hardox In My Body is your quality guarantee for trucks, dumpers, containers, buckets and a number of other applications. It implies a light, strong and tough design with a guarantee that the wear structure is made of Hardox. Only the best producers pass the test for a license to use the Hardox brand.



#### **HARDOX WEARPARTS™**

Hardox Wearparts is an international network for manufacturers of high quality wear parts. The members only use Hardox and share our objective to provide the best wear parts with the best service.



#### **SHOWING OFF THE HARDOX WEAR PLATE**

The flatness and surface finish of Hardox wear plates provide an excellent branding opportunity. Still, some companies leave part of the plate unpainted in order to show their customers that they are using Hardox.

## **Spreading the word about Hardox**

Using Hardox, and telling your customers about it, sends a strong message that you are a first class supplier. People around the world know that Hardox stands for the highest quality, performance and reliability.

Spreading the word about Hardox is a high priority for SSAB. We want everyone who has a wear challenge to fully understand the benefits of Hardox. Our ongoing activities include seminars, open-houses, marketing campaigns, participation at trade fairs and cooperation with media.

We can offer you several concepts to support your sales and marketing activities. You can for instance join the trademark program Hardox In My Body™, use the Expo Kit at trade fairs, or take part in a marketing campaign. For more information, talk to your local personal contact.

# Working with Hardox wear plate and SSAB

We welcome you to join the Hardox family. You will meet inspiring, knowledgeable and successful people handling wear challenges throughout the world.

SSAB gives you access to a dedicated and competent service organisation. We back our wear plate with all the people you need; a local personal contact, a technical manager, a logistics team, several expert groups and many more. Wherever you are, we will work hard for you.

Besides the performance of our plate, working together in a good atmosphere to achieve better results is a major fea-

ture of the Hardox experience. Many customers of SSAB have become true partners and friends over the years. Side by side, we build our businesses.

Throughout the year, seminars and courses are given at the mill in Oxelösund Sweden. You can come here to share the latest knowledge, research and experience. You will learn how to make the most out of Hardox. A visit lets you experience both our powerful mill and the beautiful nature of Scandinavia.



## LOCAL PERSONAL CONTACT

The Internet, e-mail and phone calls are sufficient many times, but we also believe in meeting face to face. So you always have a local personal contact. He or she speaks your language, is at your service and understands your business. This is your direct link to the latest information like inventory, pricing and terms of delivery.

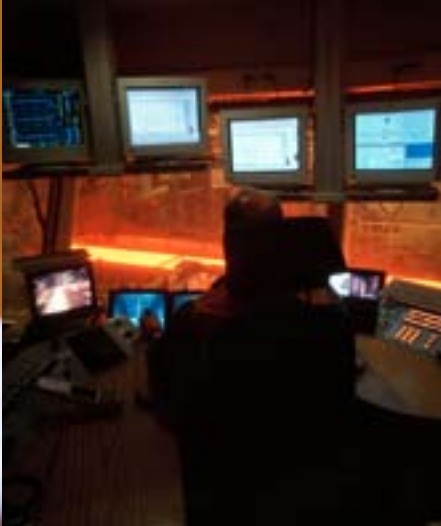
## SERVICE COMMITMENT

We sincerely believe in our service commitment. You will always receive feedback within 24 hours. Thanks to SSAB's decentralised organisation, the people you meet have decision power as well as complete and relevant information.

## THE MILL BY THE SEA

More than 2000 people work at SSAB Oxelösund. We are all focused on adding value, be it in logistical matters, technical support or any other aspect of our relationship. Literally thousands of people are both willing and able to go that extra mile for you.





SSAB is a global leader in value added high strength steel. SSAB offers products developed in close cooperation with its customers to reach a stronger, lighter and more sustainable world.

SSAB employs over 9 200 people in over 45 countries around the world and operates production facilities in Sweden and the US. SSAB is listed on the NASDAQ OMX Nordic Exchange, Stockholm.

For more information, contact us or visit [www.ssab.com](http://www.ssab.com)

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**SSAB**